REMARKS/ARGUMENTS

The final office action of February 25, 2008 maintains the obviousness rejections of all claims under consideration based on the Schutzer reference (US 5,920,848) in view of the Pollock reference (US 5,706,406). The remaining issues in the previous office action regarding the drawing and 35 USC §112 issues are not addressed, and are therefore presumably withdrawn.

The final office action effectively dismisses the applicants' remarks and arguments regarding the obviousness rejections without significant analysis. The applicants request reconsideration and withdrawal of the rejections of all claims in view of the office action's failure to meet the prima facie requirements for maintaining the rejections.

Obviousness Rejections

In the Amendment and Response submitted by the applicants on November 20, 2007, the applicants noted several established requirements for maintaining obviousness rejections and corresponding shortcomings in the prior office action. The final Office Action dated February 25, 2008, largely leaves these arguments and remarks unaddressed. Instead, the office action asserts that the references cannot be read in isolation but for what they fairly teach in combination with the prior art as a whole. The office action, citing *In re Merck*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986), claims that the applicants' "reference-by-reference attack" to demonstrate nonobviousness is not persuasive.

The office action appears to misunderstand the applicants' position. The applicants agree that the references cannot be read in isolation, but that they must be considered for what they teach in combination with the prior art as a whole. The applicants' position, however, is that even taken as a whole, the cited prior art fails to meet the requirements to sustain the obviousness rejections.

The requirements for obviousness rejections were addressed in *KSR v. Teleflex*, 127 S. Ct. 1727, 82 U.S.P.Q.2d 1385 (2007). Any obviousness determination must be consistent with the traditional *Graham* factors, such that obviousness is determined according to (1) the scope

and content of the prior art, (2) the level of ordinary skill in the art, (3) the differences between the prior art and the claimed invention, and (4) the extent of any objective indicia of nonobviousness.

The office action bases the rejections on the combination of U.S. Patent No. 5,920,848 to Schutzer et al. and U.S. Patent No. 5,706,406 to Pollock. To establish a *prima facie* case of obviousness based on combining prior art elements according to known methods to yield predictable results, the office action must articulate the following:

(1) a finding that the prior art included each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference;

(2) a finding that one of ordinary skill in the art could have combined the elements as claimed by known methods, and that in combination, each element merely performs the same function as it does separately;

(3) a finding that one of ordinary skill in the art would have recognized that the results of the combination were predictable; and

(4) whatever additional findings based on the Graham factual inquiries may be necessary, in view of the facts of the case under consideration, to explain a conclusion of obviousness.

The rationale to support a conclusion that the claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination yielded nothing more than predictable results to one of ordinary skill in the art. If any of these findings cannot be made, then this rationale cannot be used to support a conclusion that the claim would have been obvious to one of ordinary skill in the art. MPEP 2143.

Furthermore, the key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reasons why the claimed invention would have been obvious. The analysis supporting a rejection under 35 U.S.C. § 103 should be made explicit. Rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of

obviousness. In the present case, the office action fails to fulfill several of these criteria with respect to the various claims.

<u>The cited references do not show all of the claimed elements and limitations</u>

The office action fails to include a valid finding that the prior art included each element claimed. Several express elements and limitations in the claims are absent from the cited references. For example, claim 1 calls for an agent factory that monitors recommendations provided by a first artificial agent. The office action asserts that the Schutzer reference discloses an agent factory that monitors financial recommendations. Even if this characterization were accurate, it would be inadequate. Claim 1 requires the agent factory to monitor recommendations provided by an agent, not simply monitoring "financial recommendations" as asserted by the office action. Consequently, even if the office action's characterization were accurate, "an agent factory that monitors financial recommendations" is not the element recited in claim 1, and the office action provides no finding that the prior art includes this claimed element.

In addition, the cited references do not disclose that any agent factory monitors recommendations provided by the agent as claimed. While the Schutzer reference appears to disclose monitoring the financial information itself, monitoring financial information and monitoring recommendations provided by an agent are not the same thing. Therefore, the cited references do not show all of the claimed elements and limitations as required to support the obviousness rejections.

Claim 1 also calls for a management system to determine whether the first artificial agent is performing below a predetermined predictability value and, if so, retiring the first artificial agent and making a second artificial agent available for distribution. The office action provides no indication where this limitation is disclosed in the prior art. While the office action asserts that the Schutzer reference discloses an "agent factory" which monitors financial recommendations, this disclosure does not relate to the claimed limitation of determining whether the first artificial agent is performing below a predetermined predictability value and, if

so, retiring the first artificial agent and making a second artificial agent available for distribution. Whereas the agent factory of claim 1 comprises a management system that may generate and/or retire artificial agents, the "agents" in the Schutzer reference are not managed by a management system. Consequently, the office action's allegation that the Schutzer reference discloses an "agent factory" as claimed is improper, and the office action provides no other finding of the claimed limitations in the prior art.

As another example, the office action alleges that "creating new agents is considered the ability of the artificial agent to 'adapt' and change its behavior in new way by supplying the agent(s) new information as suggested by Schutzer." Such an interpretation of the claim, however, directly contradicts the language of the claim and the specification, and it is improper for the office action to assign a meaning to the claim contrary to the language of the claim and the specification. Claim 1 requires the management system to retire the first artificial agent and make a second agent available for distribution. Changing the operating parameters of an agent is not the same thing. Whereas the agents in the cited references apply a single operational sequence to a potentially changing set of input variables, they are not different agents as required by claim 1. "Adaptation" in both of the cited references may involve a fluctuating set of input and output data, but such data will in any event be evaluated according to a fixed operational sequence. By contrast, different agents apply different operational sequences to evaluate such data. The office action provides no further indication of where these elements are to be found in the prior art.

The Pollock reference provides no further disclosure of these claimed elements and limitations. The office action asserts that the Pollock reference discloses various elements and limitations absent from the Schutzer reference, such as the required management system that may retire the first artificial agent and make a second agent available for distribution. The cited portion of the Pollock reference, however, describes a fixed operational sequence that may be configured to evaluate propositions based on changing inputs. In its broadest description, the "agent" described in the Pollock reference is a singular agent that operates according to a fixed operational sequence. The Pollock reference may generate updated output in response to

updated inputs, but the system is limited to a fixed operational sequence regardless of the change in input or output.

By contrast, the applicants' claimed invention calls for creation and/or retirement of multiple artificial agents and a management system that "retir[es] the first artificial agent and mak[es] a second artificial agent available for distribution" in the event that "the first artificial agent ... perform[s] below the predetermined predictability value." The office action cites no reference suggesting retirement or generation of multiple agents or predictability values. On the contrary, the system of the Pollock reference refers to a singular agent that operates according to a fixed operational sequence.

Additionally, the cited references individually or in combination do not disclose or suggest an agent factory for managing multiple agents by comparing a given agent's performance and predictability value and replacing agents accordingly. The Pollock reference describes a system in which (at column 4, line 18) "when a goal is found, the corresponding instruction is to insert a new query into ultimate-epistemic-interests regarding the discovery of adoptable plans aimed at achieving that goal." In other words, the Pollock reference is a single predictive model that alters its plans to achieve a goal, unlike the claimed system that retires and offers different agents for achieving a preferred result. No method for evaluation of an artificial agent is disclosed or suggested in either reference and no such method can be achieved from their combination.

The rejections of the remaining independent claims are similarly deficient. For example, claim 31 expressly requires monitoring an expected future performance of the artificial agents that have been distributed and, in response to performance of at least one artificial agent below a predetermined predictability value, creating new artificial agents and distributing the new artificial agents. As noted above, the cited references fail to disclose monitoring an expected future performance of the artificial agents, and the office action does not identify any disclosure of this element in either of the cited references. In addition, as described above, the Schutzer and Pollock references fail to disclose creating new artificial agents and distributing the new artificial agents as required by the claims and defined in the specification.

Claim 46 requires artificial agents created based at least in part on different technical analysis templates being applied to historical price time series information, and claim 54 calls for an artificial agent created based at least in part on a technical analysis template applied to historical price time series information. The cited references do not disclose any such artificial agents based in any way on different technical analysis templates being applied to historical price time series information, and the office action provides no grounds to support the rejection of claim 46. Claim 46 further requires a management system, in communication with real time market data, operable to (i) receive the artificial agents, (ii) display characteristic information with respect to each received artificial agent and (iii) inform a user of a specific recommendation made by at least one of the artificial agents. Claim 54 requires a management system, in communication with real time market data, operable to display characteristic information with respect to the artificial agent and inform a user of a specific recommendation made by the artificial agent. The office action does not identify the corresponding elements with the recited limitations in the cited references, and the references provide no such disclosure.

Claim 58 recites creating an artificial agent based at least in part on a technical analysis template applied to historical price time series information of a financial instrument. The cited references do not disclose any such artificial agent, and the office action fails to identify the disclosure of any such agent in either cited reference. Claim 58 further requires determining an expected future performance of the artificial agent based on a trading strategy associated with the artificial agent, applying the trading strategy to the financial instrument, and retiring the artificial agent when the expected future performance falls below a predetermined threshold. None of these elements is disclosed in the references, and the office action provides no reasons for rejecting claim 58.

The office action of February 25, 2008, completely ignores the limitations of dependent claims, and thus does not support the rejections of these claims. For example:

- Claim 26 calls for the artificial agents to monitor their expected future performance using a predictability value. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 27 requires the predictability value to be based on mutual-information-based reconstruction of a multivariate landscape. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 28 requires a price time series of a financial instrument to be used to generate the multivariate landscape. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claims 29 and 67 require a curriculum vitae to be associated with each artificial agent. The office action provides no grounds for rejecting these claims, and the references disclose no such limitation.

- Claim 30 requires distributing artificial agents to be effected in accordance with a leasing service agreement. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 33 requires the request to be one of a subscription and a leasing agreement. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 34 requires each artificial agent to provide a financial trading recommendation. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 35 requires each artificial agent to have a distinct trading strategy. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 38 requires the expected future performance of an artificial agent to be associated with a predictability of a decision making strategy. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claims 39 and 76 require an artificial agent to have a strategy that is designed by a user. The office action provides no grounds for rejecting these claims, and the references disclose no such limitation.

- Claim 49 requires an automated trade clearing system in communication with the management system. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 50 requires the specific recommendation to be one of buy, sell and hold. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 51 requires a price feedback indicator to be associated with each artificial agent. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 52 requires the price feedback indicator to be determined by querying the artificial agent as to how a recommendation would change in view of various price scenarios. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 53 requires the price feedback indicator to be represented by a symbol from the group consisting of +,-, > , < and n. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claims 56, 60, and 71 require the artificial agent to be self-monitoring. The office action provides no grounds for rejecting these claims, and the references disclose no such limitation.

- Claim 57 requires a price feedback indicator to be associated with the artificial agent. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 59 requires the expected future performance to be based on a predictability value. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 61 requires determining the artificial agent's price feedback indicator by: (a) presenting the agent with different hypotheses about the price of the financial instrument during a subsequent trading period; (b) determining the artificial agent's recommendation for each of the different hypotheses; and (c) analyzing the resulting recommendations. The office action provides no grounds for rejecting this claim, and the references disclose no such limitations.

- Claim 68 requires the predictability value to change in view of real time market data. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 69 requires the predictability value to be based on mutual-information-based reconstruction of a multivariate landscape. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 70 requires a price series of a financial instrument to be used to generate the multivariate landscape. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 72 requires the artificial agents to monitor their expected future performance using a predictability value. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 73 requires the artificial agents to retire when their predictability falls below a predetermined threshold. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 74 requires retired agents to be replaced by new agents from an agent factory. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

- Claim 75 requires each artificial agent to be pre-trained with a predetermined decision making strategy. The office action provides no grounds for rejecting this claim, and the references disclose no such limitation.

In sum, office action must articulate a finding that the prior art included each element claimed. In this case, the office action fails to identify several express elements and limitations of the claims in the Schutzer and Pollock references or any other prior art references. Consequently, the rejections of the claims are improper and should be withdrawn.

The office action fails to fulfill the requirements of other possible grounds for the rejections

The office action fails to articulate the full theory of the rejections. All other grounds for rejection, however, are equally unsupported. The cited references fail to disclose several elements and limitations of the claimed invention, and therefore cannot support the rejections under any theory of obviousness. The office action provides no valid finding that the scope and content of the prior art, whether in the same field of endeavor as that of the applicants' invention or a different field of endeavor, included a similar or analogous device, method, or product; that at the time of the invention, there had been a recognized problem or need in the art, that there had been a finite number of identified, predictable potential solutions to the recognized need or problem, and that one of ordinary skill in the art could have pursued the known potential solutions with a reasonable expectation of success; that the prior art contained a "base" device upon which the claimed invention can be seen as an "improvement"; or that the prior art contained a device which differed from the claimed device by the substitution of some components with other components, that the substituted components and their functions were known in the art, that one of ordinary skill in the art could have substituted one known element for another, and the results of the substitution would have been predictable.

If these or other valid findings cannot be made, then the obviousness rejections cannot stand. In the present case, the office action has not satisfied the prima facie requirements, and the rejections should be withdrawn.

<u>No reason to combine the references to arrive at the claimed invention</u>

It is inappropriate to reject claims based on obviousness without an objective reason to combine the teachings of the references. "[T]here must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." <u>KSR</u>, slip op. at 14. Further, "a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." <u>KSR</u> at 14. It is important for the office action "to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." <u>KSR</u> at 15. An examiner must present a "convincing line of reasoning supporting a rejection." MPEP 2144.

In the present case, the office action fails to provide the required articulated reasoning with a rational underpinning. The office action asserts that the claimed invention would be obvious

> because the artificial agent would be provided with information that would make it 'behave' within predetermined levels or within required rules or criteria. Thus to create a new artificial agent would essential be to impart to it different or updated data when it failed to provide an expected outcome... Thus creating new agents is considered the ability of the artificial agent to 'adapt' and change its behavior in new way by supplying the agent(s) new information as suggested by Schutzer...

As discussed above, the office action improperly equates modifying the parameters of an agent with creating a new agent. The remainder of the proposition is incomprehensible and offers no reason to combine the references. In any event, the quoted portion of the office action does not examine the applicants' claimed invention in view of the cited references. The applicant respectfully submits that the office action thus fails to provide the requisite "articulated reasoning with some rational underpinning to support the legal conclusion of obviousness", and the rejections should be withdrawn.

No Reasonable Expectation of Success

The office action must describe a reasonable expectation of success in modifying or combining the cited references to achieve the claimed invention. The level of predictability need not be absolute, but a showing of at least some degree of predictability is required. MPEP 2143.02. The office action does not address this element of the *prima facie* case. To the extent the office action addresses the combination of the Schutzer and Pollock references, it does not describe whether such a combination would provide a viable artificial agent. Since this element is unaddressed, the rejections are improper and should be withdrawn.

Improper hindsight

The applicants submit that, in view of the shortcomings of the cited references, the conclusions of the office action can only be reached through the impermissible use of hindsight. The claimed invention is not simply a "predictable use of prior art elements according to their established functions," and the office action provides no objective reason to combine their respective teachings to arrive at the claimed invention. "A factfinder should be aware ... of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning." KSR at 17.

In the present case, the office action relies on the applicants' disclosure and/or hindsight to support the obviousness rejection. This is clearly inappropriate, as "the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure." MPEP 2143. Because the office action cannot support the rejections without relying on the applicants' disclosure and/or hindsight, the rejections are improper and should be withdrawn.

CONCLUSION

In summary, the applicants respectfully request reconsideration and withdrawal of the rejections, and submit that all claims are distinguishable over the prior art and are in condition for allowance. If there are any questions or concerns, please contact the undersigned at the telephone number indicated below.

Date: _25 AUG 08_

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